

openings with understory species, young Fraser fir, and thickets of blackberry (*Rubus* sp.). Herbs and mosses are typically a dense collection of high-elevation species.

Grassy Bald is a very rare community on summits of cold, high elevation peaks where vegetation is dominated by native grasses and sedges. A variety of high elevation herbs and occasional patches of shrubs are typically present, including several rare species of open habitats. Many non-native herbs of high pastures may be present in areas that were previously grazed by cattle. The forces that originally created and maintained these communities are not completely understood, but may have included intense grazing by herds of large herbivores. The presence of certain rare species that are restricted to Grassy Balds, such as Schweinitz's ragwort (*Packera schweinitzianus*), lends support to their naturalness. Rare species such as tall larkspur (*Delphinium exaltatum*), Gray's lily (*Lilium grayi*), wood lily (*Lilium philadelphicum* var. *philadelphicum*), and others can occur in them.

Heath Bald communities are relatively uncommon in the Southern Appalachians on thin soils at exposed high elevation sites such as peaks, steep slopes, and sharp ridges. They are generally quite dry due to rapid soil drainage and exposure to sun and wind. They are dominated by shrubs such as Catawba rhododendron (*Rhododendron catawbiense*), mountain laurel (*Kalmia latifolia*), black chokeberry (*Aronia melanocarpa*), red chokeberry (*Aronia arbutifolia*), mountain highbush blueberry (*Vaccinium simulatum*), deerberry (*Vaccinium stamineum*), mountain fetterbush (*Pieris floribunda*), mountain sweet pepperbush (*Clethra acuminata*), black huckleberry (*Gaylussacia baccata*), and minniebush (*Menziesia pilosa*). Stunted, infrequent trees may include several common species of high-elevation trees. The rare Heller's blazing star (*Liatris helleri*) may occur where patches of bare rock limit shrubs.

High Elevation Red Oak Forest occurs on moist to dry slopes and ridgetops at middle to high elevations (generally 3500 feet and above). Red oak (*Quercus rubra*) is dominant in a semi-open canopy. Few other tree species are present, though other oaks (*Quercus* spp.) and hickories (*Carya* spp.) are often present. Understories are usually fairly sparse, but may include serviceberry (*Amelanchier arborea*), mountain holly (*Ilex montana*), striped maple (*Acer pensylvanicum*), alternate-leaved dogwood (*Cornus alternifolia*), and sprouts of American chestnut (*Castanea dentata*). Shrubs such as Catawba rhododendron (*Rhododendron catawbiense*), mountain laurel (*Kalmia latifolia*), and blueberries (*Vaccinium* spp.) are sometimes fairly dense, though some "orchardlike" examples have few shrubs and an herb layer dominated by Pennsylvania sedge (*Carex pensylvanica*), with other high elevation herbs.

High Elevation Rocky Summit community occurs on rugged, horizontal and vertical outcrops on exposed ridges, peaks, and upper slopes at elevations usually above 4600 feet. Bare rock is abundant, with cracks, ledges, and other irregularities in which small quantities of soil accumulate. Growth and plant succession in this community are limited by a cold climate. The vegetation is dominated by the sub-shrub silverling (*Paronychia argyrocoma*), and herbs such as three-toothed cinquefoil (*Sibbaldiopsis tridentata*), live-forever (*Sedum telephioides*), Michaux's saxifrage (*Saxifraga michauxii*), rockcap fern (*Polypodium appalachianum*), sedges (*Carex* spp.), and crag-jangle (*Heuchera villosa*). This community is referred to as the "Southern